

Amendment and Response
Applicants: Lars Björck et al.
Serial Number: 09/869,677

Attorney Docket: KCO1004US

Amendments to the Sequence Listing:

Please delete the current sequence listing and replace it with the enclosed substitute sequence listing.



SEQUENCE LISTING

JUL 07 2004

TECH CENTER 1600/2000

<110> Actinova Limited
Bjorck, Lars
Janulczyk, Robert

<120> STREPTOCOCCAL ABC TRANSPORTER PROTEIN

<130> KCO1004US

<140> US 09/869,677

<141> 2001-10-09

<150> GB 9828880.6

<151> 1998-12-31

<160> 15

<170> PatentIn version 3.2

<210> 1

<211> 893

<212> DNA

<213> Streptococcus pyogenes

<220>

<221> CDS

<222> (1)...(861)

<400> 1

tcg tcg act ggc gct aaa act gct aag agt gat aaa tta aaa gtc gtg 48
Ser Ser Thr Gly Ala Lys Thr Ala Lys Ser Asp Lys Leu Lys Val Val
1 5 10 15

gca acc aat tca att att gcc gac atg aca aaa gct att gct ggt gat 96
Ala Thr Asn Ser Ile Ile Ala Asp Met Thr Lys Ala Ile Ala Gly Asp
20 25 30

aaa atc gat ctg cac agc att gtg cca atc ggt caa gac cct cat gag 144
Lys Ile Asp Leu His Ser Ile Val Pro Ile Gly Gln Asp Pro His Glu
35 40 45

tac gaa cca tta cca gaa gat gct gaa aaa aca agt aat gct gat gtg 192
Tyr Glu Pro Leu Pro Glu Asp Ala Glu Lys Thr Ser Asn Ala Asp Val
50 55 60

att ttc tat aat ggt atc aat cta gaa gat ggc ggg caa gct tgg ttc 240
Ile Phe Tyr Asn Gly Ile Asn Leu Glu Asp Gly Gly Gln Ala Trp Phe
65 70 75 80

acc aaa cta gtg aaa aat gct caa aaa acg aaa aac aaa gat tac ttt 288
Thr Lys Leu Val Lys Asn Ala Gln Lys Thr Lys Asn Lys Asp Tyr Phe
85 90 95

gcc gtg tct gat ggc att gat gtg att tac ttg gaa ggt gca agc gaa 336
Ala Val Ser Asp Gly Ile Asp Val Ile Tyr Leu Glu Gly Ala Ser Glu

100	105	110	
aaa gga aaa gaa gat cca cat gct tgg tta aat ctc gaa aac gga atc Lys Gly Lys Glu Asp Pro His Ala Trp Leu Asn Leu Glu Asn Gly Ile 115 120 125			384
att tat tca aaa aac att gcc aaa caa ttg att gca aag gat cct aaa Ile Tyr Ser Lys Asn Ile Ala Lys Gln Leu Ile Ala Lys Asp Pro Lys 130 135 140			432
aac aaa gaa act tat gaa aag aac cta aaa gct tat gtg gct aaa ttg Asn Lys Glu Thr Tyr Glu Lys Asn Leu Lys Ala Tyr Val Ala Lys Leu 145 150 155 160			480
gaa aaa cta gac aaa gaa gcc aaa tca aaa ttt gat gct att gca gaa Glu Lys Leu Asp Lys Glu Ala Lys Ser Lys Phe Asp Ala Ile Ala Glu 165 170 175			528
aat aaa aaa ttg att gtg act agt gaa ggc tgc ttc aag tac ttt tca Asn Lys Lys Leu Ile Val Thr Ser Glu Gly Cys Phe Lys Tyr Phe Ser 180 185 190			576
aaa gct tac ggt gtc cca tct gct tat atc tgg gaa att aac acc gaa Lys Ala Tyr Gly Val Pro Ser Ala Tyr Ile Trp Glu Ile Asn Thr Glu 195 200 205			624
gaa gaa gga aca cca gat caa att tca tca ttg att gaa aaa cta aaa Glu Glu Gly Thr Pro Asp Gln Ile Ser Ser Leu Ile Glu Lys Leu Lys 210 215 220			672
gtc atc aag cca tct gcg ctt ttt gta gag tca agt gtc gat aga cgc Val Ile Lys Pro Ser Ala Leu Phe Val Glu Ser Ser Val Asp Arg Arg 225 230 235 240			720
cct atg gaa act gtt tct aaa gat agt ggt att cct att tat tct gag Pro Met Glu Thr Val Ser Lys Asp Ser Gly Ile Pro Ile Tyr Ser Glu 245 250 255			768
atc ttt aca gat tca att gct aaa aaa ggt aaa cct ggc gat agt tat Ile Phe Thr Asp Ser Ile Ala Lys Lys Gly Lys Pro Gly Asp Ser Tyr 260 265 270			816
tat gct atg atg aaa tgg aac ctt gac aaa att tct gaa ggt cta Tyr Ala Met Met Lys Trp Asn Leu Asp Lys Ile Ser Glu Gly Leu 275 280 285			861
gcaaaaataag ataacaataa agcacagcga tt			893

<210> 2
 <211> 287
 <212> PRT
 <213> Streptococcus pyogenes

 <400> 2

Ser Ser Thr Gly Ala Lys Thr Ala Lys Ser Asp Lys Leu Lys Val Val

1	5	10	15
Ala Thr Asn Ser Ile Ile Ala Asp Met Thr Lys Ala Ile Ala Gly Asp	20	25	30
Lys Ile Asp Leu His Ser Ile Val Pro Ile Gly Gln Asp Pro His Glu	35	40	45
Tyr Glu Pro Leu Pro Glu Asp Ala Glu Lys Thr Ser Asn Ala Asp Val	50	55	60
Ile Phe Tyr Asn Gly Ile Asn Leu Glu Asp Gly Gly Gln Ala Trp Phe	65	70	75
Thr Lys Leu Val Lys Asn Ala Gln Lys Thr Lys Asn Lys Asp Tyr Phe	85	90	95
Ala Val Ser Asp Gly Ile Asp Val Ile Tyr Leu Glu Gly Ala Ser Glu	100	105	110
Lys Gly Lys Glu Asp Pro His Ala Trp Leu Asn Leu Glu Asn Gly Ile	115	120	125
Ile Tyr Ser Lys Asn Ile Ala Lys Gln Leu Ile Ala Lys Asp Pro Lys	130	135	140
Asn Lys Glu Thr Tyr Glu Lys Asn Leu Lys Ala Tyr Val Ala Lys Leu	145	150	155
Glu Lys Leu Asp Lys Glu Ala Lys Ser Lys Phe Asp Ala Ile Ala Glu	165	170	175
Asn Lys Lys Leu Ile Val Thr Ser Glu Gly Cys Phe Lys Tyr Phe Ser	180	185	190
Lys Ala Tyr Gly Val Pro Ser Ala Tyr Ile Trp Glu Ile Asn Thr Glu	195	200	205
Glu Glu Gly Thr Pro Asp Gln Ile Ser Ser Leu Ile Glu Lys Leu Lys	210	215	220
Val Ile Lys Pro Ser Ala Leu Phe Val Glu Ser Ser Val Asp Arg Arg	225	230	235
			240

Pro Met Glu Thr Val Ser Lys Asp Ser Gly Ile Pro Ile Tyr Ser Glu
245 250 255

Ile Phe Thr Asp Ser Ile Ala Lys Lys Gly Lys Pro Gly Asp Ser Tyr
260 265 270

Tyr Ala Met Met Lys Trp Asn Leu Asp Lys Ile Ser Glu Gly Leu
275 280 285

<210> 3
<211> 27
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 3
tagtagcgaa ttcgtcgact ggcgcta

27

<210> 4
<211> 28
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 4
agcacaactc gagaatcgct gtgcttta

28

<210> 5
<211> 17
<212> PRT
<213> Streptococcus pyogenes

<400> 5

Lys Gln Leu Ile Ala Lys Asp Pro Lys Asn Lys Glu Thr Tyr Glu Lys
1 5 10 15

Asn

<210> 6
<211> 19
<212> PRT
<213> Streptococcus pyogenes

<400> 6

Glu Ile Asn Thr Glu Glu Glu Gly Thr Pro Asp Gln Ile Ser Ser Leu
1 5 10 15

Ile Glu Lys

<210> 7

<211> 16

<212> PRT

<213> Streptococcus pyogenes;

<400> 7

Glu Ser Ser Val Asp Arg Arg Pro Met Glu Thr Val Ser Lys Asp Ser
1 5 10 15

<210> 8

<211> 21

<212> PRT

<213> Streptococcus pyogenes;

<400> 8

Thr Asp Ser Ile Ala Lys Lys Gly Lys Pro Gly Asp Ser Tyr Tyr Ala
1 5 10 15

Met Met Lys Trp Asn
20

<210> 9

<211> 13

<212> PRT

<213> Streptococcus pyogenes;

<400> 9

Gln Asp Pro His Glu Tyr Glu Pro Leu Pro Glu Asp Val
1 5 10

<210> 10

<211> 28

<212> DNA

<213> Artificial

<220>

<223> PCR primer

<400> 10

gattacaact aacaatcttt gtgtgacc 28

<210> 11
<211> 28
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<400> 11
ttgacaaggt atcaacagta aatacctc 28

<210> 12
<211> 24
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<220>
<221> misc_feature
<222> (6)..(15)
<223> n at position 6 is a or t; n at position 9 is c or t; and n at
position 15 is a or g or t

<400> 12
atgtcnctna tggnggatgc catc 24

<210> 13
<211> 23
<212> DNA
<213> Artificial

<220>
<223> PCR primer

<220>
<221> misc_feature
<222> (3)..(18)
<223> n at position 3 is a or g; n at position 9 is t or g; n at
position 11 is g or a; n at position 15 is a or g; and
n at position 18 is c or t

<400> 13
ttngcatana natangcngt cgc 23

<210> 14
<211> 10
<212> PRT

<213> Artificial

<220>

<223> fragment corresponding to amino acid residues 30-39 of MtsA protein (sequence based on Streptococcal Genome Project database)

<400> 14

Lys	Ser	Asp	Lys	Leu	Lys	Val	Val	Ala	Thr
1				5					10

<210> 15

<211> 10

<212> PRT

<213> Artificial

<220>

<223> fragment; 10 amino acid papain fragment from proteolytic digestion of *S. pyogenes*, corresponding to amino acid residues 30-39 of MtsA protein sequence (from the strain studied)

<400> 15

Glu	Ser	Asp	Lys	Leu	Lys	Val	Val	Ala	Thr
1				5					10